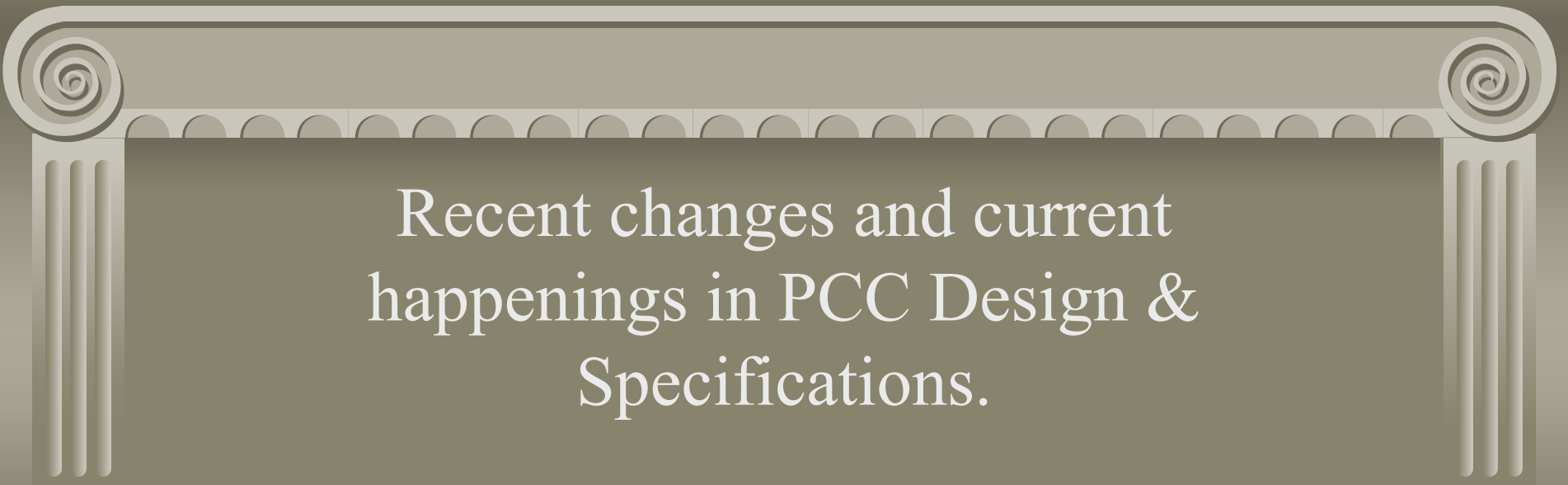


# What's Up with PCC?



Recent changes and current  
happenings in PCC Design &  
Specifications.

# Goal of Pavement Design

- ◆ Design most cost effective pavement
- ◆ Provide tools to assure quality construction
- ◆ Simplify decision making for designers (minimize errors & omissions)
- ◆ Simplify requirements of final product
- ◆ Minimize Maintenance exposure
- ◆ Willing to spend more money up front to get it right the first time.

# Pavement Service Life

- ◆ Included 40 year service life standard in HDM for high volume corridors.
- ◆ Memo issued reiterating importance/advantage of longer life pavements

# PCC Shoulder Design

- ◆ HDM update allows either tied PCC shoulders or AC shoulders with a widened (14') slab except in a few cases.
- ◆ Goal is to focus more on performance based requirements.

## Other HDM/Guide Changes

- ◆ New HDM limits use of undoweled pvmt
- ◆ Min PCC thickness now 8”.
- ◆ LCB & AC Base now preferred
- ◆ New PCC design overview.
- ◆ New PCC rehab guide.

## Other Changes

- ◆ Pavement web site to provide one stop shop

<http://projdel.dot.ca.gov/design/pavement/index.asp>

- ◆ Portion of site available on internet.

<http://www.dot.ca.gov/hq/oppd/pavement/index.htm>

# Standard Plan Updates

- ◆ Replace A35 series with new P series.
- ◆ Expanded # sheets from 4 to 13 for PCC
- ◆ Some of the added features include:

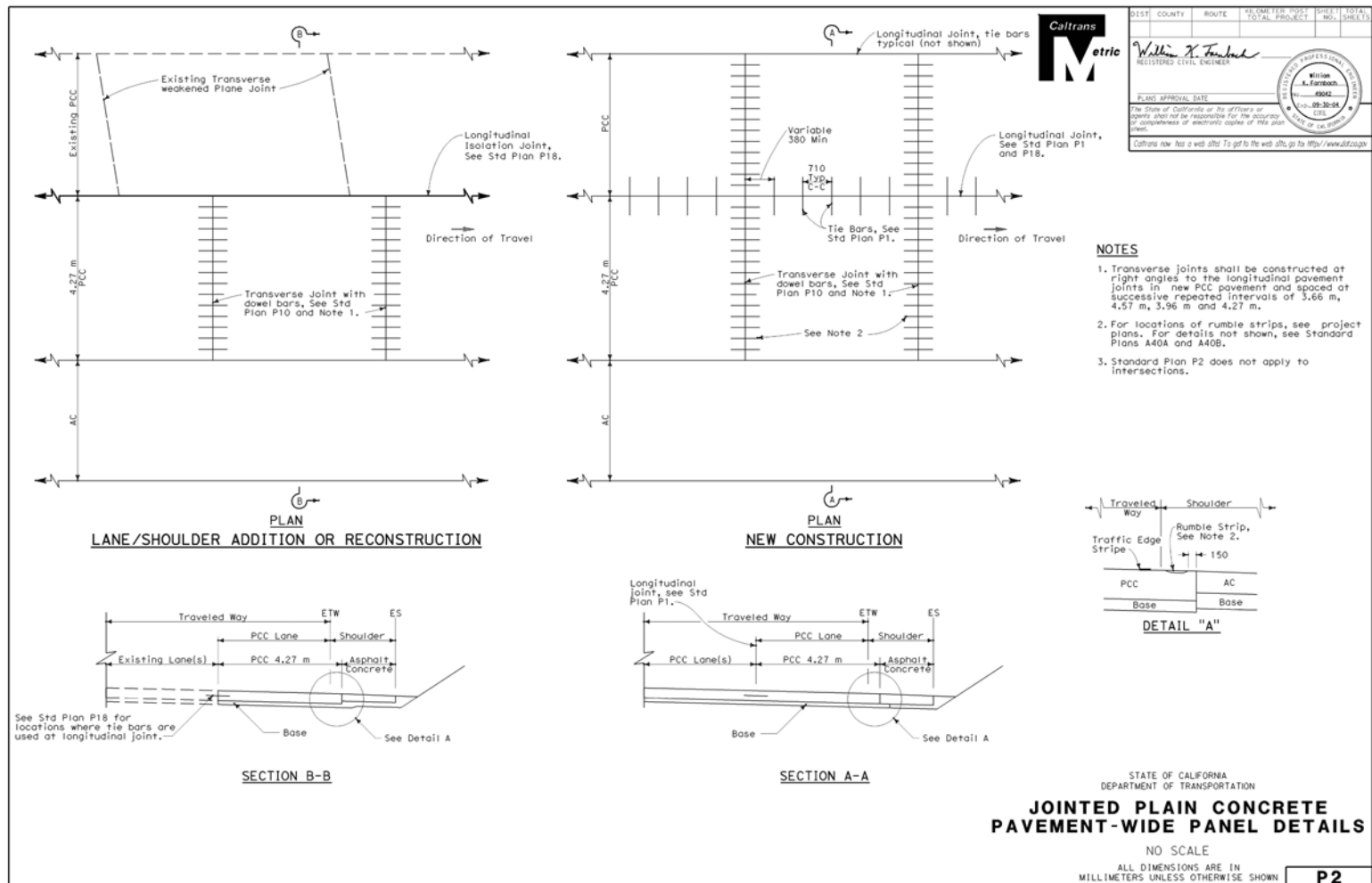


# P1: Jointed Plain Concrete Pvmnt

- ◆ Old A35B (Doweled PCC Pvmnt)
- ◆ Cleaned up notes. Move some info to other plans.
- ◆ Want to start using term JPCP on plans, specs, & estimates.
- ◆ Reason: Planning to introduce other types of PCC paving in the next few years.



# P2: Wide Panel Details



Addresses 4.27 m (14') wide panel conditions

## P5: Undoweled JPCP

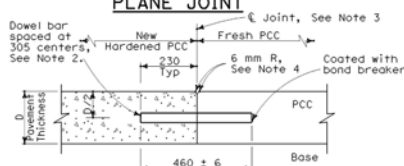
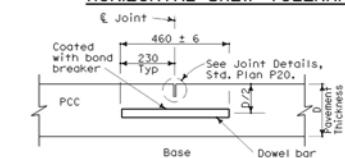
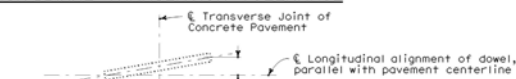
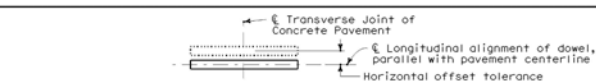
- ◆ Old A35A (Undoweled PCC Pvmt)
- ◆ Removed Undoweled option for new pavement.
- ◆ Modified remaining details to match cases allowed in HDM.

## P7: Dowel Bar Retrofit

- ◆ Old A35D
- ◆ No changes, but changes are coming
- ◆ Current advisory to not include in projects for 4/5 Year due to some recent problems.

# P10: Dowel Bars

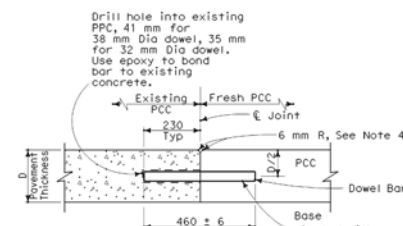
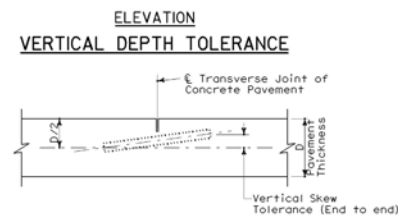
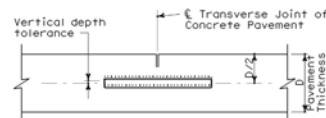
125



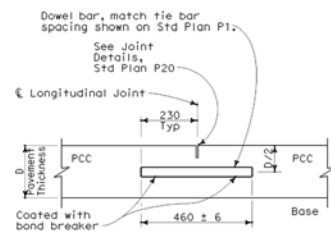
**TABLE A**  
**Dowel Bar Transverse Spacing Table**

Width between Longitudinal Joints (m)	Offset Dimension "x" (mm)	Number of Dowels between Longitudinal Joints
4.27	152	14
3.66	152	12
3.60	125	12
3.05	152	10
3.00	125	10
2.44	152	8
2.4	130	8
1.52	150	5
1.50	140	5

See Note 3



**LONGITUDINAL WEAKENED PLANE JOINT WITH DOWEL BARS**  
(See Std Plan P18)



**LONGITUDINAL CONTACT JOINT WITH DOWEL BARS**  
(See Std Plan P18)

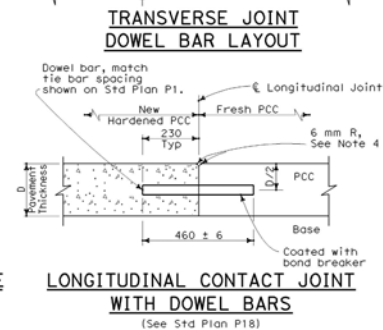
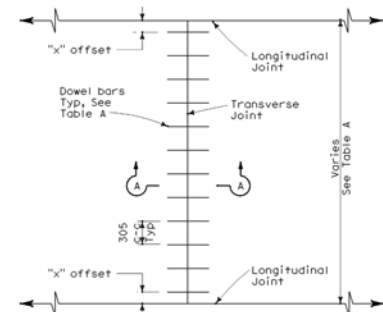
## NOTES

- See Standard Plan P1 for typical dowel placement and locations.
- 38 mm Dia smooth dowels are to be used with a pavement thickness, D, equal to or greater than 215 mm. For pavement thickness, D, less than 215 mm, use 32 mm Dia smooth dowels.
- For widths not shown, see Project Plans.
- If fresh PCC is placed adjacent to existing PCC, the top corner of the new hardened PCC does not need to be rounded to the 6 mm radius, as shown.



DIST	COUNTY	ROUTE	ALIGNED POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

Caltrans now has a web site! To get to the web site, go to <http://www.dtl.ca.gov>



## CONCRETE PAVEMENT- DOWEL BAR DETAILS

NO SCALE  
ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

**P10**

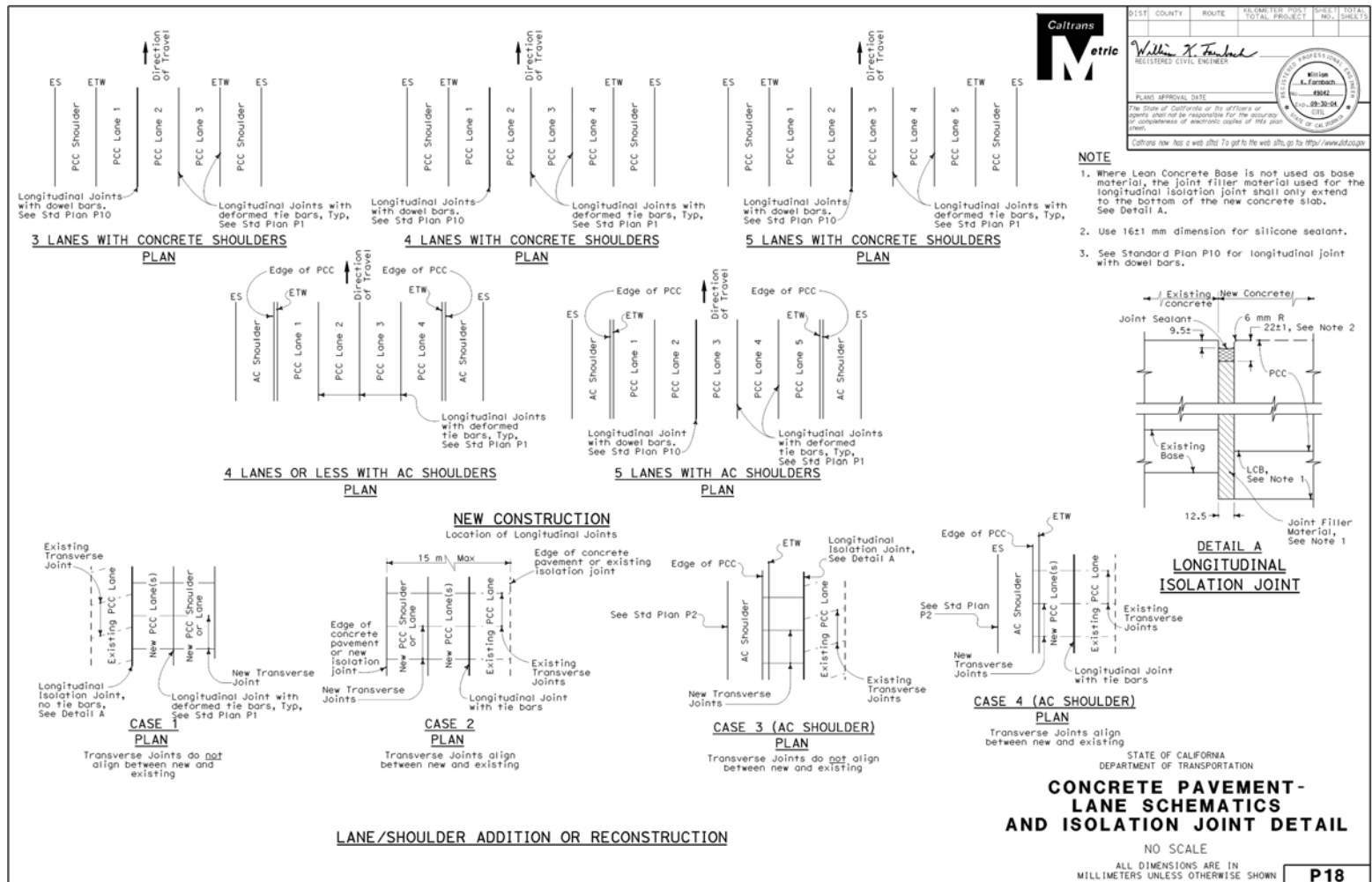
2004 Std Plan P10

# P12 & P17: Dowel & Tie Bar Baskets

- ◆ Provides standardized details
- ◆ Eliminate need for Contractor to produce & RE to review shop drawings



# P18: Lane Schematics



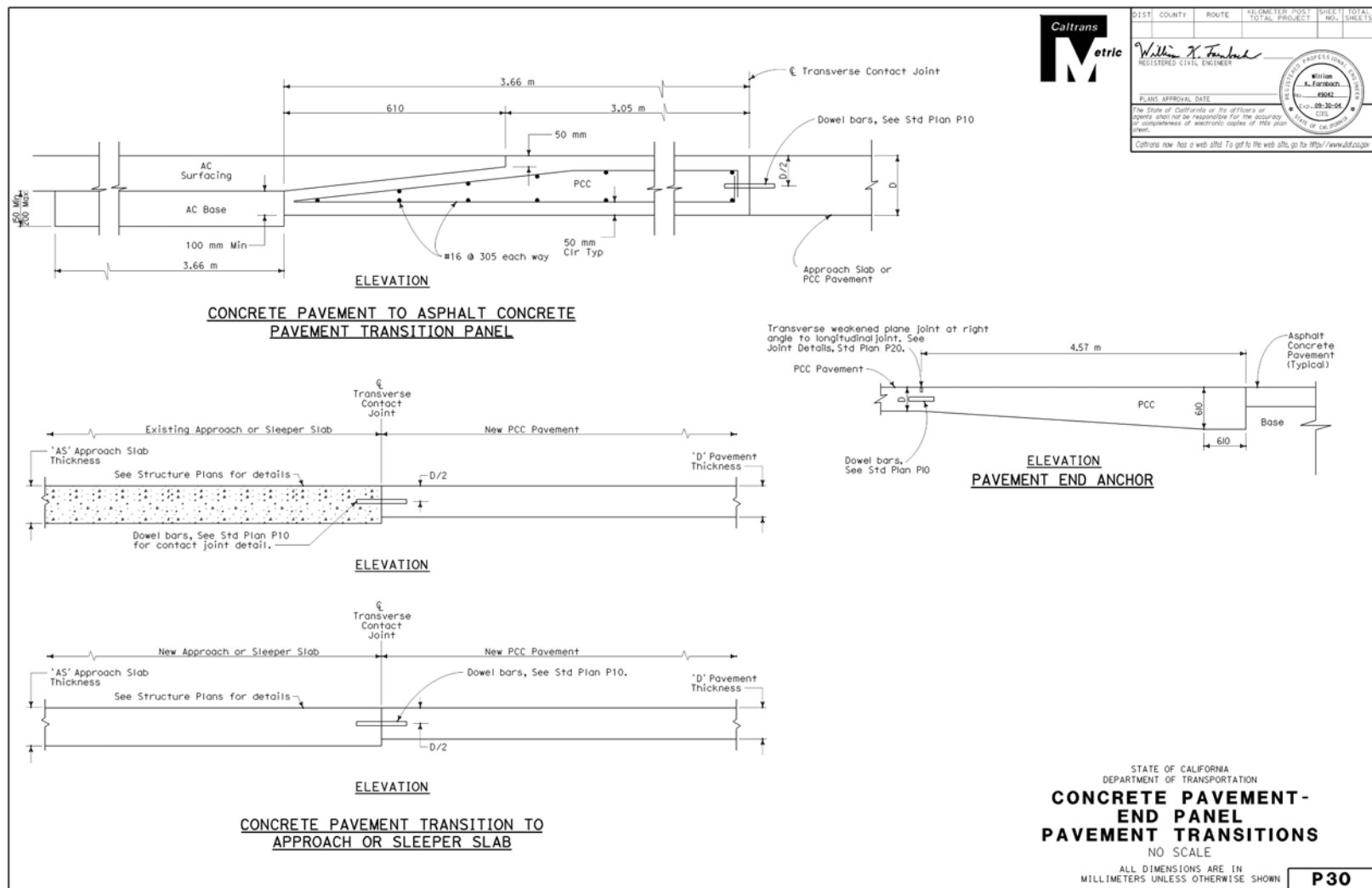
Tie bar layouts & Isolation Joints

## P20: Joint Seals

- ◆ Old A35C
- ◆ Saw cut depth removed from plans  
(allows depth to vary based on cut type)



# P30: PCC Transition



To AC Pvmnts & Approach Slabs



# P35: Ramp Transition/Gore

## NOTES

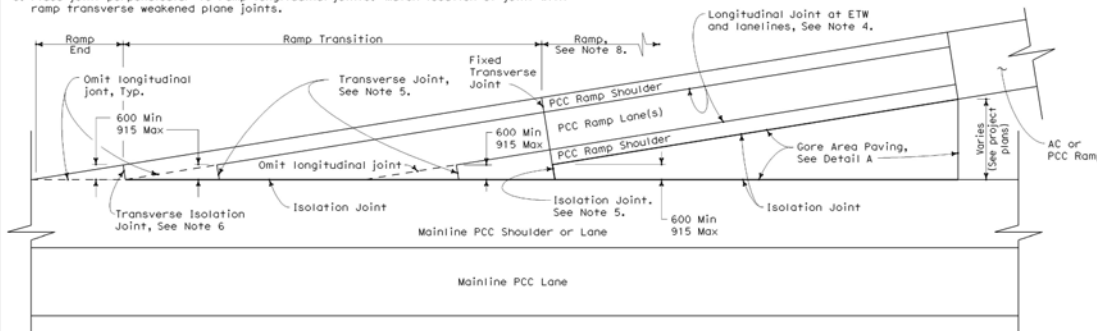
1. Details for gore area paving are applicable to both exit and entrance ramps.
2. Transverse Joint Layouts are not shown. Refer to Standard Plan P1 or to Project Plans for details regarding joint layouts, tie bars, and dowels not shown.
3. WWF 102 x 102 - MW30 x MW30 can be used in place of #13 Bars.
4. Omit longitudinal joint when PCC on ramp shoulder is less than 915 mm.
5. Place joint perpendicular to ramp longitudinal joints. Match location of joint with ramp transverse weakened plane joints.
6. Place joint perpendicular to mainline longitudinal joints. Match location of joint with mainline transverse weakened plane joints.
7. Isolation joint detail shown on Standard Plan P18.
8. Transverse joints to be spaced from fixed transverse joint and shall follow spacing pattern on Standard Plan P1. Minimum spacing shall be 1.83 meters.



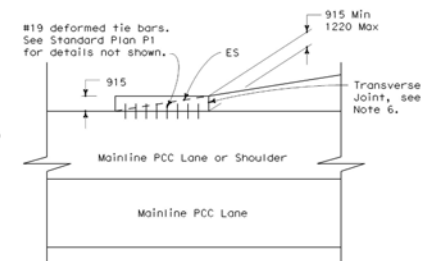
DIST.	COUNTY	ROUTE	AL. METER POST	SHEET	TOTAL
			TOTAL PROJECT	NO.	SHEET

William X. Fairbank  
 REGISTERED CIVIL ENGINEER  
 No. 49-36-04  
 CTS

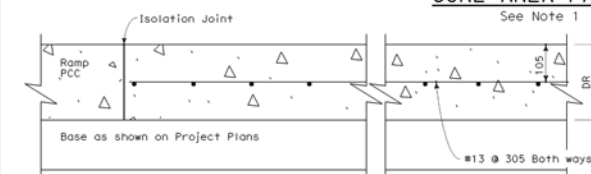
PLANS APPROVAL DATE: \_\_\_\_\_  
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.  
 Caltrans now has a web site. Go to the web site, go to the URL: www.dot.ca.gov



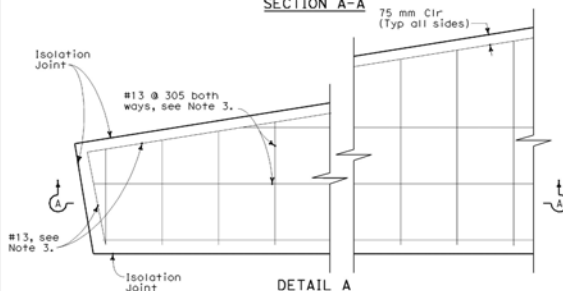
**PLAN  
GORE AREA PAVING**



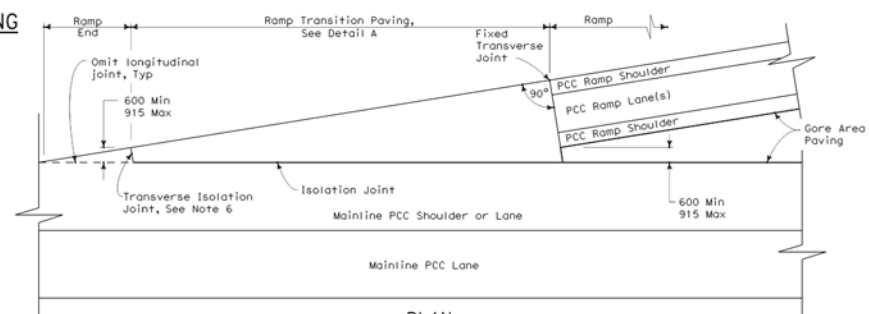
**PLAN  
ALTERNATE RAMP END DETAIL**



**SECTION A-A**



**DETAIL A**



**PLAN  
ALTERNATE RAMP TRANSITION DETAIL**

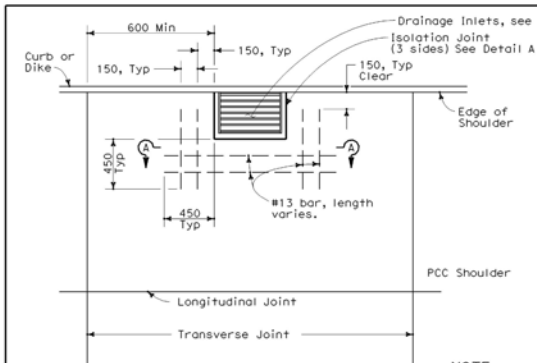
STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**CONCRETE PAVEMENT-  
 RAMP GORE AREA  
 PAVING DETAILS**

NO SCALE  
 ALL DIMENSIONS ARE IN  
 MILLIMETERS UNLESS OTHERWISE SHOWN

**P35**

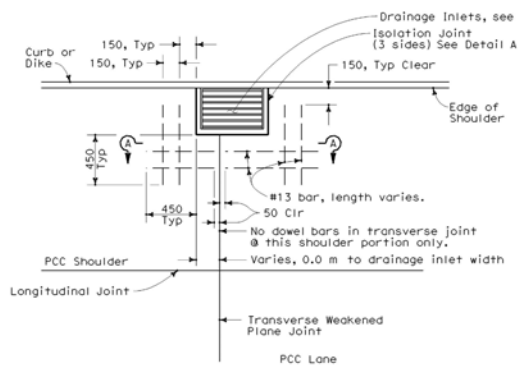
2004 Std PLAN P35

# P45 & P46: Drain Inlets in PCC



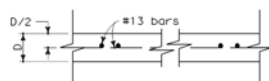
CASE 1

Transverse joint more than 600 mm clear of drainage inlet wall.



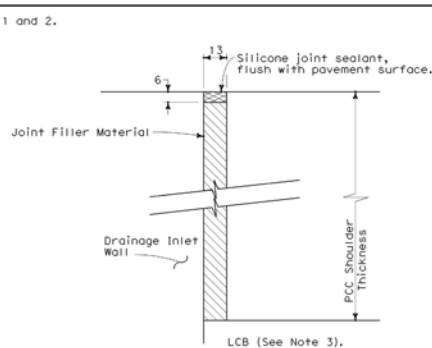
CASE 2

Transverse joint intersects drainage inlet, or matches drainage inlet wall.



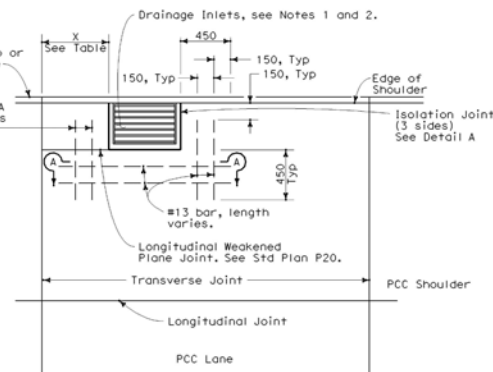
SECTION A-A

D = Pavement Thickness



DETAIL "A"  
ISOLATION JOINT AROUND DRAINAGE INLET

NOTE  
Dowels and tie bars not shown. See Std. Plan P1.



CASE 3

Transverse joint within 600 mm of drainage inlet wall, or matches drainage inlet wall.



DIST.	COUNTY	ROUTE	ALUMINUM POST	SHEET TOTAL
			TOTAL PROJECT	NO. SHEETS
William K. Fairhead REGISTERED CIVIL ENGINEER 49042 09-20-04 STATE OF CALIFORNIA PLANS APPROVAL DATE The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet. Caltrans now has a web site! To get to the web site go to: <a href="http://www.dot.ca.gov">http://www.dot.ca.gov</a>				

## NOTES

1. Refer to Project Plans for location and types of drainage inlets.
2. Top of inlet shall be flush with shoulder surface.
3. Extend joint filler material to bottom of LCB. Where LCB is not used as base material, the joint filler material shall only extend to the bottom of the new PCC pavement.

TABLE A

DISTANCE X	BARS REQUIRED
600-450	2
450-225	1 @ X/2
225 or less	None

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**CONCRETE PAVEMENT  
DRAINAGE INLET  
DETAILS No. 1**  
NO SCALE

ALL DIMENSIONS ARE IN  
MILLIMETERS UNLESS OTHERWISE SHOWN

P45

2004 STD PLAN P45

# Pavement Specification Changes



# Work in Progress

- ◆ Update design thickness tables for PCC
- ◆ Establish performance criteria for end of pavement service life.
- ◆ Improved monitoring of existing pavements
- ◆ Guide to designing PCC intersections
- ◆ Develop performance based design method (M-E)

# Last Thought – For Latest Info

◆ Pavement intranet site

<http://projdel.dot.ca.gov/design/pavement/index.asp>

◆ Pavement internet site

<http://www.dot.ca.gov/hq/oppd/pavement/index.htm>